



PDI-P15Q

HDTV PAL/DVB-T

Arm Mounted Healthcare-Grade Television

Document Number: PD196-285R1

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Safety Information


	This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.
	This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.

	CAUTION RISK OF ELECTRIC SHOCK, DO NOT OPEN!	
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL		

	Ce symbole indique qu'une tension dangereuse constituant un risque de choc électrique est présente dans cet appareil.
	Ce symbole indique qu'il existe des instructions d'utilisation et d'entretien importantes dans la documentation accompagnant cet appareil.

	AVERTISSEMENT RISQUE DE CHOC ELECTRIQUE, NE PAS OUVRIR!	
AVERTISSEMENT: AFIN DE REDUIRE LE RISQUE DE CHOC ELECTRIQUE, NE PAS RETIRER LE COUVERCLE. L'APPAREIL NE CONTIENT AUCUN COMPOSANT SUSCEPTIBLE D'ÊTRE REPARÉ PAR L'UTILISATEUR. CONFIER L'ENTRETIEN A DU PERSONNEL QUALIFIÉ		


Cette installation doit être effectuée par un technicien qualifié et doit être conforme à tous les codes locaux. Lire et suivre les consignes de sécurité avant de procéder à l'installation.


 **This Service Manual** is intended for use by qualified service persons possessing an adequate background in electrical equipment, electronic devices, and mechanical systems. In any attempt to repair a major product, personal injury and property damage can result. The manufacturer or seller maintains no liability for the interpretation of this information, nor can it assume any liability in conjunction with its use. When servicing this product, under no circumstances should the original design be modified or altered without permission from PDi. Unauthorized modifications will not only void the warranty, but may also lead to property damage or user injury.

ESD Notice (Electrostatic Discharge)

Today's electronics are electrostatic discharge (ESD) sensitive. ESD can weaken or damage the electronics in a manner that renders them inoperative or reduces the time until their next failure. Connect an ESD wrist strap to a ground connection point or unpainted metal in the product. Alternatively, you can touch your finger repeatedly to a ground connection point or unpainted metal in the product. Before removing a replacement part from its package, touch the anti-static bag to a ground connection point or unpainted metal in the product. Handle the electronic control assembly by its edges only. When repackaging a failed electronic control assembly in an anti-static bag, observe these same precautions.

Product Safety Servicing Precautions

 **DANGER: ARM RECOIL HAZARD** For PDi brand arms, the safety brake pin must remain in the SAFETY BRAKE PIN HOLE whenever the television is removed from the arm or when the arm is removed from the wall bracket to prevent the arm from springing open.

 **POWER SOURCE** Use only a power source indicated for use with this product. This TV will operate on AC voltage. To avoid personal injury, disconnect the power before servicing this product. If electrical power is required for diagnosis or test purposes, disconnect the power immediately after performing the necessary checks.

REPLACEMENT Replace only with the part number specified.

VOLTAGE CHECKS Exercise care when making voltage and waveform checks to prevent costly short circuits from damaging the unit.

METAL OBJECTS Be cautious of lost screws and other metal objects to prevent a possible short in the circuitry.

SAFETY CHECKS This hospital grade television requires special safety checks before returning to service. Observe and follow the "Safety Check" section in this service manual.

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Specifications for PDI-P15Q

PANEL	
Screen Size	15.6" (39.62cm)
Aspect Ratio	16:9
Native Display Resolution	1366 x 768
Contrast Ratio	1000:1
Viewing Angle	85/85/85/85
Response Time	13 ms
Color Depth	16.7M
Brightness	300 cd/m2
Backlight Lamp Life (hours)	50,000
OSD	English, German, French, Spanish, Italian
VIDEO BROADCASTING	
ATV System	ATV System
DTV System	DTV System
Teletext	2000 Pages
MHEG5 Supported	Yes
3D Digital Comb Filter	3D Digital Comb Filter
3:2 Pull Down Compensation	3:2 Pull Down Compensation
3D de-interlacer	3D de-interlacer
AUDIO	
Speakers/Audio Output Power	2@2-Watt RMS
Analog Channels	Mono/Stereo/SAP
Digital Channels	Dolby [®]
Headphone	Yes
HEALTHCARE SPECIFIC FEATURES	
Audio Volume Limiter (AVL)	Yes
Internal Speaker Disable	Yes
Min/Max Volume Limiter	Yes
Start/Power-on Volume	Yes
Selectable Pillow Speaker	+14VDC, +5VDC, OFF, -5VDC
Universal Pillow Speaker Recognition	Yes
Pillow Speaker Audio	Yes
Auto Power On	Yes
Channel Enable/Disable	Yes
Bed A/B/C/D	Yes
Programmable Source Selection	Yes
Direct Access Keypad, Sealed Antimicrobial	Yes
Parental Control (V-CHIP)	Yes
USB Clone Programmable	Yes
CCI Port	Yes
MTI Port	Yes
Touch Screen Option	No
Sleep Timer	Yes
A/V INPUT/OUTPUT	
USB Port (Clone and Firmware Update)	Yes
RF Input	Yes
HDMI	Yes, 2
VGA Input	Yes
PC Audio Input	Yes
Audio L/R Input	Yes
Digital Audio Output	1 Rear (Coaxial Output)
MTI Port	Yes
CCI	Yes
POWER	
Source	12VDC
Max Consumption	25W
Power Supply	Low Voltage
REGULATORY	
FCC	Yes
UL _C /UL 60065 Annex Q	Yes
UNIT CHARACTERISTICS	
Weight (kgs) (with Stand)	10 lbs (4.52 kg)
Unit Dimensions (WxHxD) (cm)	43.81 cm x 31.15 cm x 10.16 cm

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Disinfecting and Cleaning

The P15Q should be disinfected before performing any service. The following procedure is only a recommendation. Your hospital or company may have a different procedure to follow.



Caution: Before using any cleaning or disinfecting agent on the P15Q units, perform a spot check by wetting a small area of the cabinet. Verify the agent does not discolor or deteriorate the cabinet.

Disinfecting

1. *This unit has been designed to withstand up to a 25% chlorine based disinfectant. Many alcohol and ammonia based disinfectants have also been tested with success. Apply the cleaner or disinfectant per its recommended instructions.*

Note: Most disinfectants require a waiting time following application and prior to wipe-down.

2. *The manufacturer recommends isopropyl alcohol for the cleaning of the LCD screen.*

Cleaning

Stubborn ink and other scratch type marks may prove difficult to remove. A dilute solution of Isopropyl alcohol will generally work when all else fails. However, full strength Isopropyl will remove the cabinet's paint. Use with caution!

Product Identification

Product Label

The P15Q is easily identified using the product label located on the back cabinet housing.



Serial Number Format Explanation



1. The first two digits compose the year of manufacture. 2014 would be 14.
2. The second two digits compose the week of manufacture. 13 would be week 13.
3. The single alphabetic character represents the place of manufacturing.
4. The next three alphanumeric characters compose the unique model ID.
5. The next character is the revision level.
6. The next five digits compose the serial number starting with the first unit produced in the current year.

Checking Points to Consider

Dynamic picture adjustments to Brightness, Contrast, Color, and Tint are available using the IR Remote Control, Part number PD108-420, using the SETUP/Picture menu.

1. Check the appearance of the replacement panel and circuit boards for both physical damage and part number accuracy.
2. Check the model label. Verify model names and board model matches.
3. Check details of defective condition and history. Contact PDI with serial number for details.

Replaceable Parts List

ITEM	PART NUMBER	DESCRIPTION	ITEM	PART NUMBER	DESCRIPTION
1	PD128-1759	MAIN BOARD	9	PD106-748	SPEAKERS
2	PD128-1711	INVERTER BOARD	10	PD106-768	LVDS CABLE
3	PD128-1758	KEYPAD	11	PD106-769	HEADPHONE CABLE
4	PD128-1760	INTERFACE BOARD	12	PD106-770	PILLOW SPEAKER CABLE
5	PD289-124	LCD PANEL	13	PD106-771	EXTERNAL POWER CABLE
6	PD106-530	EXTERNAL COAX CABLE	14	PD106-772	INTERNAL POWER CABLE
7	PD106-560	USB CABLE	15	PD106-773	IR CABLE
8	PD106-716	KEYPAD CABLE			

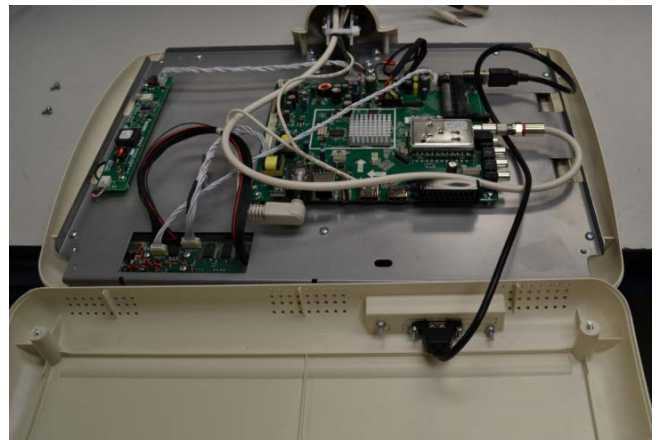
Unit Disassemble Instructions

*  denotes screws and nuts  denotes cable connections

Back Cover

Remove (4) screws from the back cover.

Remove back cover starting at top of TV, being careful not to break tabs and avoid connectors on main board. Avoid putting strain on HDMI cable connecting the front and rear pieces.



USB Cable Removal

There are (4) screws to remove to disassemble the USB cable from the rear cover.



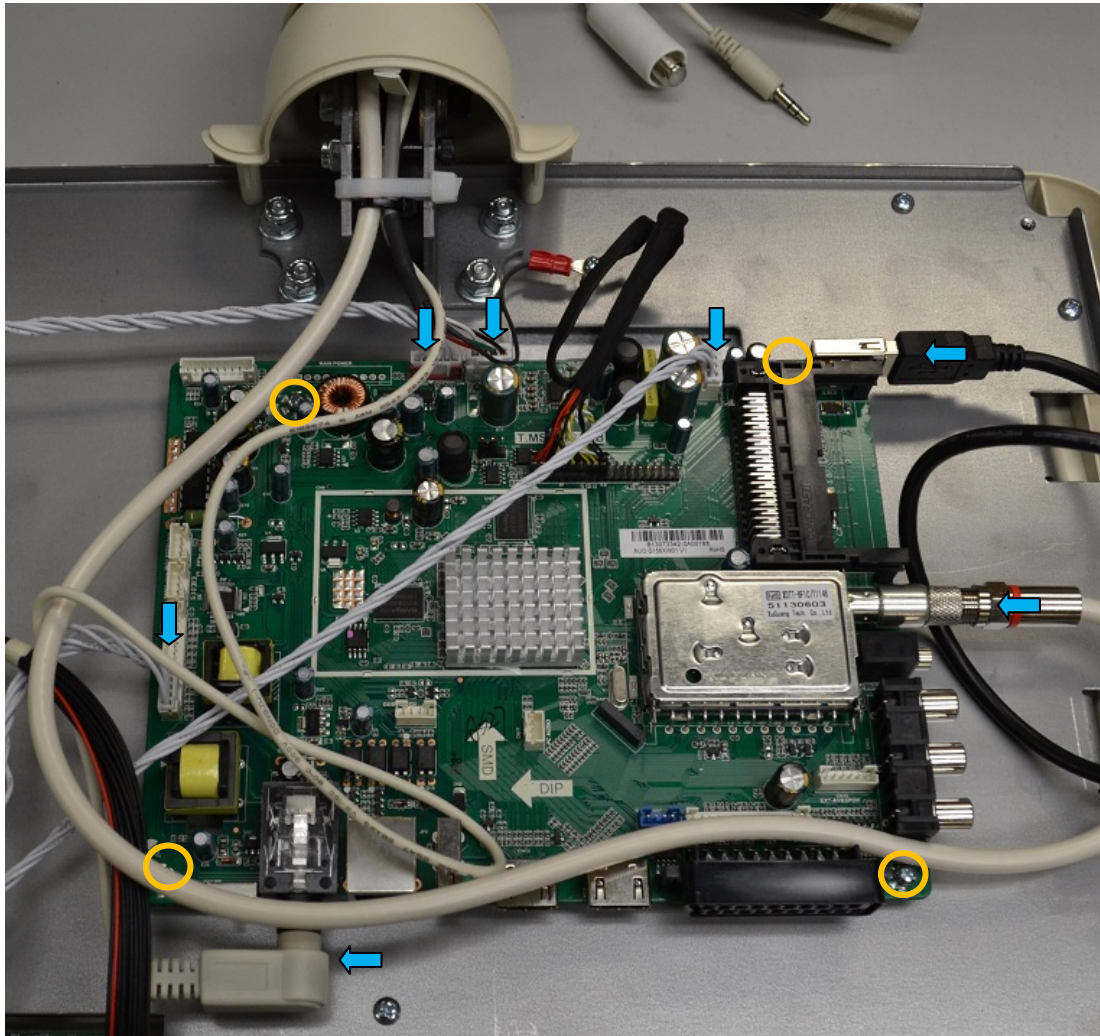
Board Removal



Before handling the main board, be sure that you have taken precautions to protect it and other parts from Electrostatic Discharge.

Main Board

The main board **PD128-1759** is secured with (4) screws. There are (7) connectors that must be detached before it is removed from the chassis.



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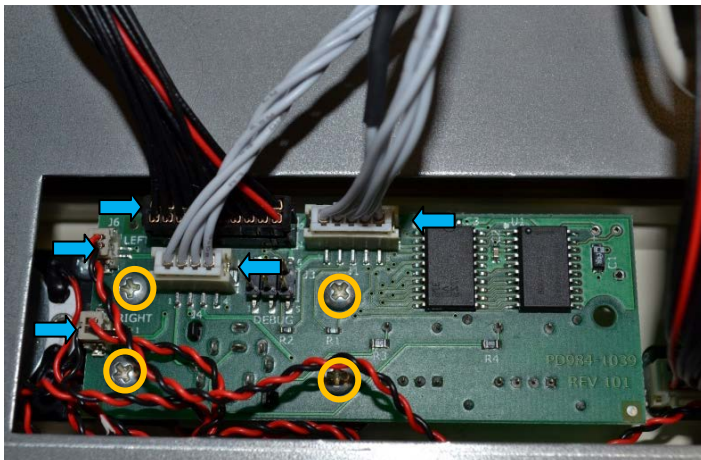
Inverter Board

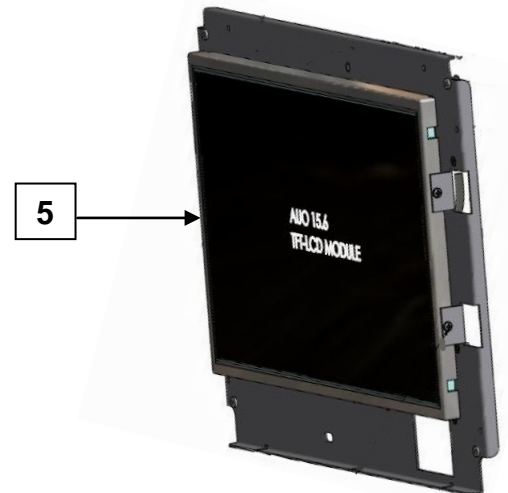
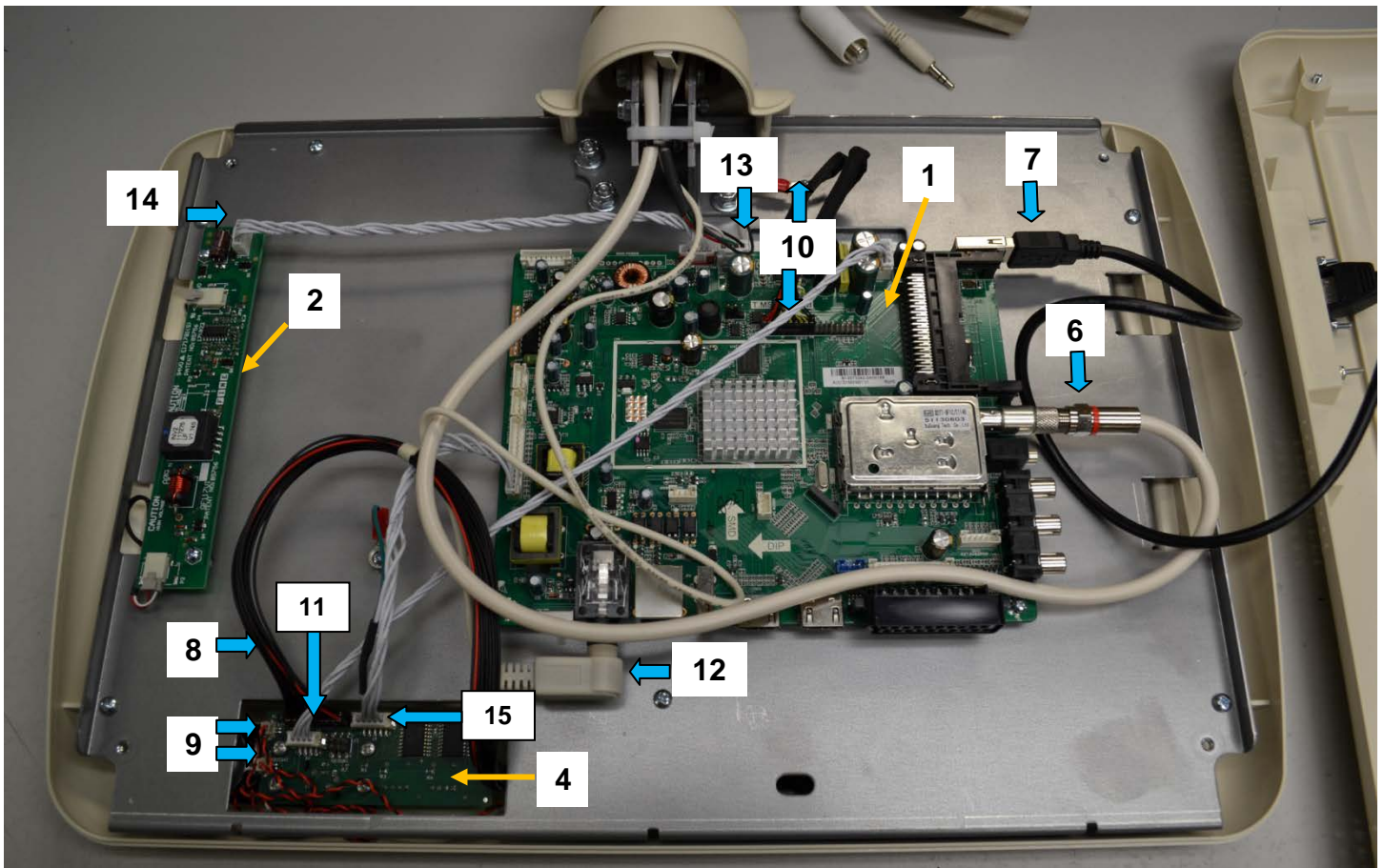
The inverter board **PD128-1711** is secured with (2) screws. There are (3) connectors that must be detached before it is removed from the chassis.



Interface Board

The interface board **PD128-1760** is secured with (4) screws. There are (5) connectors that must be detached before it is removed from the chassis.





Parts List

ITEM	PART NUMBER	DESCRIPTION	ITEM	PART NUMBER	DESCRIPTION
1	PD128-1759	MAIN BOARD	9	PD106-748	SPEAKERS
2	PD128-1711	INVERTER BOARD	10	PD106-768	LVDS CABLE
3	PD128-1758	KEYPAD	11	PD106-769	HEADPHONE CABLE
4	PD128-1760	INTERFACE BOARD	12	PD106-770	PILLOW SPEAKER CABLE
5	PD289-124	LCD PANEL	13	PD106-771	EXT POWER CABLE
6	PD106-530	EXT COAX CABLE	14	PD106-772	INT POWER CABLE
7	PD106-560	USB CABLE	15	PD106-773	IR CABLE
8	PD106-716	KEYPAD CABLE			

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Swivel Removal

You will need to remove the swivel assembly to have access to the LCD panel, speakers and inverter board. There are (4) nyloc nuts and washers (**Fig 2**) that secure the swivel assembly to the TV. Three external cables and a ground wire (**Fig 1**) will have to be disconnected before removal. The lower swivel cover **PD133-802** (along with necessary external cables **PD106-771**, **PD106-770**, **PD106-530**) is attached to chassis using (2) **PDIPPTL61938** screws. (**Fig 1**)

Chassis

The chassis is attached to the front cabinet with (7) **PDIPPTL61938** screws. LVDS cable **PD106-768** is attached through slots on chassis. LCD panel **PD289-124** is attached to **PD186-014** chassis using (4) **PDISEMSM3X55** screws. (**Fig 2**)

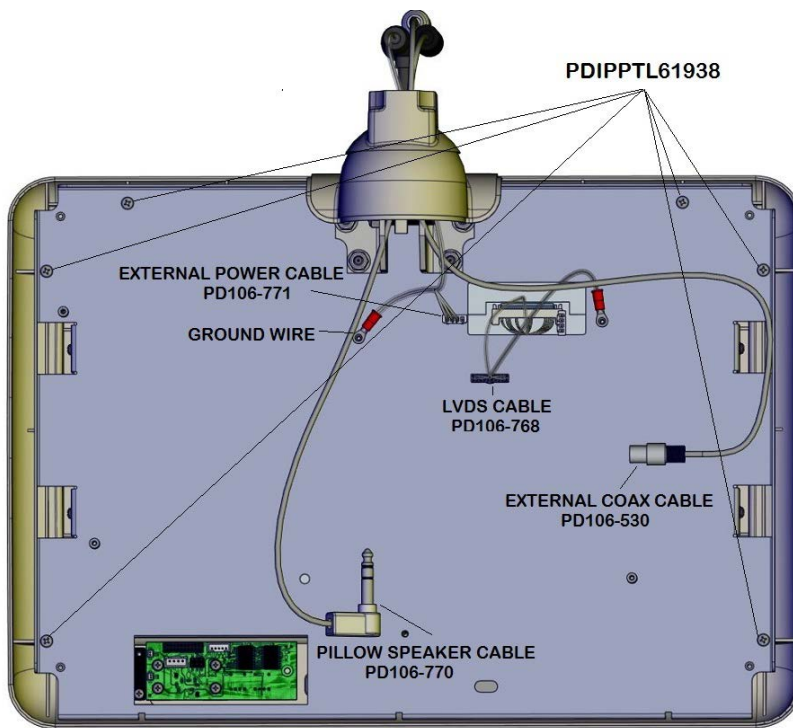


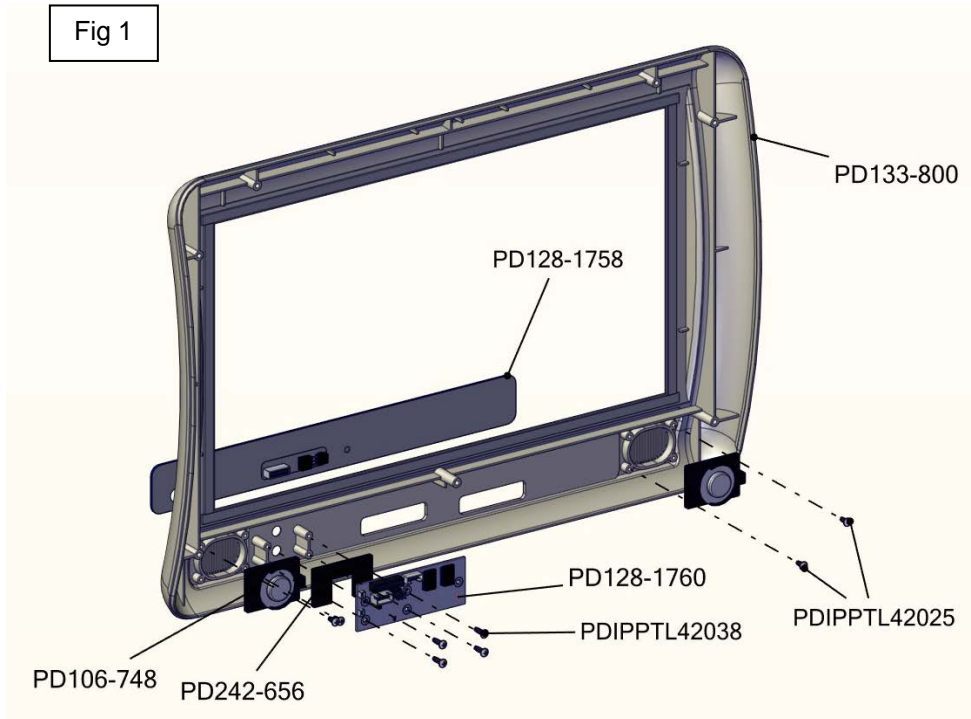
Fig 1



Fig 2

Keypad Assembly

The keypad assembly **PD128-1758** is attached with an adhesive backing to the front panel (**Fig 1**)
The keypad cable **PD106-716** is connected to the keypad and interface board (**Fig 2**)

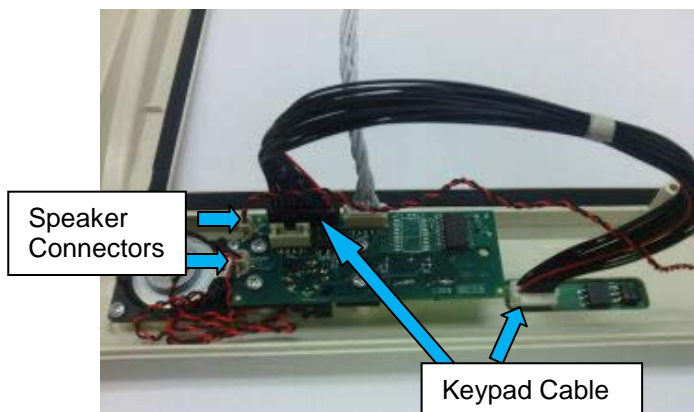


Speakers

*The chassis and front panel will have to be separated for access to the speakers.

The speakers **PD106-748** are connected to the front panel with (2) screws each (**Fig 1**)
The speaker connectors are attached to the interface board **PD128-1760** (**Fig 2**)

Fig 2



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Basic Troubleshooting Steps

Factory Reset Procedure

Many times issues can be resolved by performing a factory reset on the TV. Reset the TV from the setup menu before performing the following troubleshooting steps.

Symptom	Check
TV DEAD (No Power)	<ul style="list-style-type: none"> • Verify DC power cord is fully seated into TV's power socket • Verify AC plug is connected to a powered AC outlet • Check Power cable for voltage. • Replace main board (PD128-1759)
NO COLOR	<ul style="list-style-type: none"> • Tune TV to another channel. Check for color • Adjust color settings in Setup/Picture menu • Verify correct signal type is set in Setup/Channels menu • Perform Auto Program • Replace LVDS cable (PD106-768) • Replace main board (PD128-1759) • Replace panel (PD289-124)
CANNOT TUNE TO A DESIRED CHANNEL	<ul style="list-style-type: none"> • Verify TV is connected to a coax cable that has RF signal • Verify channel is programmed into current service level • Tune to channel with remote • Tune to channel with TV keypad • Verify correct Signal type is set in Setup/Channels menu • Replace main board (PD128-1759)
TV KEYPAD INOPERATIVE	<ul style="list-style-type: none"> • Verify TV is powered (Red LED for off, green LED for on) • Check TV operation with remote control • Disconnect pillow speaker jumper cable and recheck keypad • Verify that keypad cable is seated correctly to main chassis connector • Verify TV is not on media input • Replace keypad (PD128-1758) • Replace main board (PD128-1759)
SNOWY PICTURE	<ul style="list-style-type: none"> • Verify TV RF signal level is (>0 dBmV at the TV) • Tune to another channel • Verify correct Signal type is set in Setup/Channels Manual • Verify RF connections are tight, wrench tighten RF in swing arm • Replace LVDS cable (PD106-768) • Replace main board (PD128-1759)
NOISY PICTURE	<ul style="list-style-type: none"> • Verify TV RF signal level is (>0 dBmV at the TV) • Tune to another channel • Verify RF connections are tight, wrench tighten RF in swing arm • Turn off nearby equipment if possible and isolate noise source • Move TV and cables to minimize or eliminate noise. • Replace main board (PD128-1759)

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PICTURE OK, NO PILLOW SPEAKER SOUND	<ul style="list-style-type: none"> • Verify pillow speaker is fully inserted into TV's speaker jack • Try a different pillow speaker • Verify TV is not muted. Adjust for maximum volume • Replace main board (PD128-1759)
BLACK OR DIM PICTURE, SOUND OK	<ul style="list-style-type: none"> • Check for on-screen menu and adjust for maximum brightness and contrast • Verify DATA connector is seated on main board • Verify Backlight connectors are plugged in and secure • Replace LVDS cable (PD106-768) • Replace main board (PD128-1759) • Replace panel (PD289-124)
PICTURE OK, NO SPEAKER SOUND	<ul style="list-style-type: none"> • Verify TV is not muted. • Verify cable is seated into main chassis and into IR board • Verify pillow speaker is not being used • Remove headphones, verify internal speaker • Verify TV speaker has not been disabled for the current Service Level in the Sound/Internal Speaker Enable menu • Replace speaker (PD106-748) • Check sound. If there is still no sound, replace the main board (PD128-1759)
LOW VOLUME OR VIBRATION IN SPEAKER	<ul style="list-style-type: none"> • Check for missing or loose screw in speaker

Reassembly

Reassemble the unit in reverse manner as the disassembly paying special attention to:

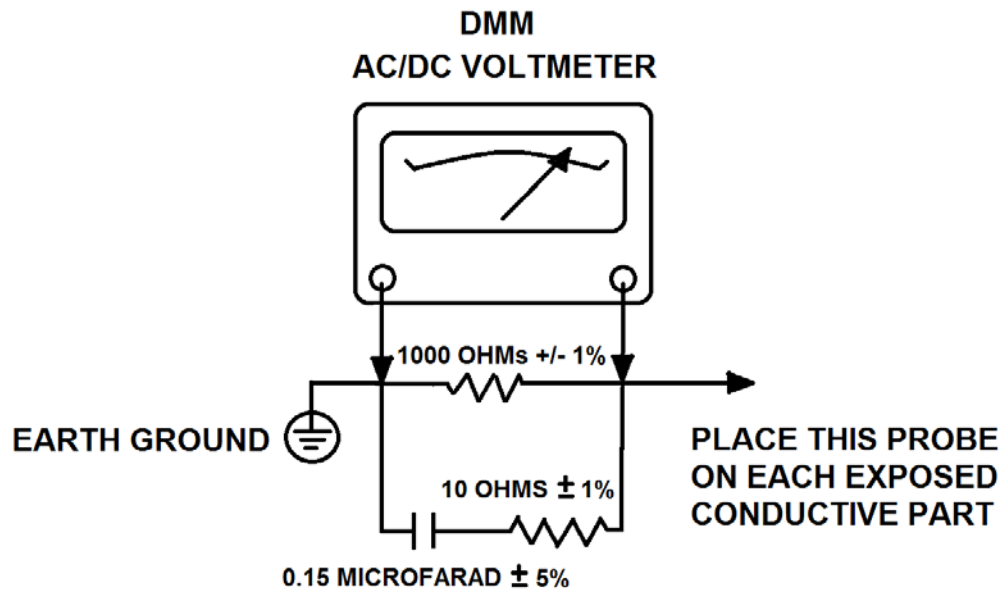
- All parts removed in the repair of the TV are reassembled in original manner.
- All circuit boards should be mounted to the back panel with screws (DO NOT over torque).
- All cables are properly connected, routed, and clear of pinch points.

Safety Checks

Leakage Current

After re-assembly of the unit, always perform a leakage test on all exposed conductive parts of the unit such as metal connectors, chassis, and mount.

With the unit powered, the following circuit should be connected from earth ground to each exposed conductive part on the repaired unit. A DMM is placed in parallel with this circuit to measure AC rms or DC voltage. If leakage currents are greater than the maximum allowed, inspect the TV for insulation or component breakdowns.



The maximum allowed leakage current depends on the type of power the unit receives and whether the unit is within reach of the patient bed/chair.

TV Type	Max Leakage Current	Max DMM Voltage Reading
Footwall TV (120VAC grounded wall outlet)	500µA AC rms	500mV AC rms
12VDC Arm Mount TV (PDI-750XL power supply)	100µA DC	100mV DC
28VAC Arm Mount TV (PDI-750A 750B or 772HE power supply)	50µA AC rms	50mV AC rms

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Regulatory Information

FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Contact Information

For any questions with servicing PDi televisions contact our Service Department at:

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Springboro, Ohio 45066

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